

RIPARIAN BUFFERS AND SMART GROWTH IN THE WATERSHED:

**BALANCING THE ECONOMY, THE ENVIRONMENT AND
QUALITY OF LIFE**



Prepared by:
North Country Council, Inc

With funding from
Connecticut River
Watershed Council



The rivers of New
England are places
of fertile
floodplains, high
pastures and deep
forests, linked by
waters filled with
life.



Laced throughout
this is a powerful
working
landscape of
farms, villages,
and cities: the
threads of human
character that
come from a long
association with
the land and the
Rivers.

These rivers
and their
tributaries
once provided
both the
original
avenue for
settlement of
the valleys
and power for
the towns
that grew
around them.

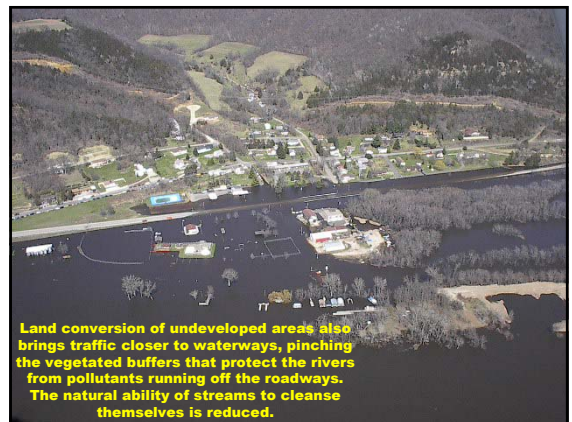


These same rivers were turned into sewers from the
byproducts of our towns and we turned our backs on
the polluted stream.

Continued development created more impervious
surfaces and destroyed native vegetation along the
waterways.



Stormwater cannot penetrate these hard
surfaces in developed areas and runs off,
reaching the stream faster than it would
naturally. Flood hazard is increased and
streambanks become unstable.



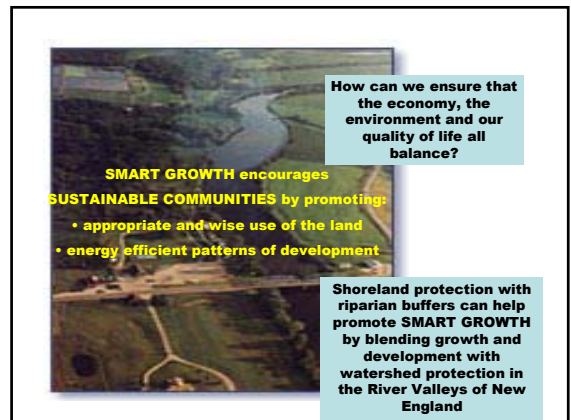
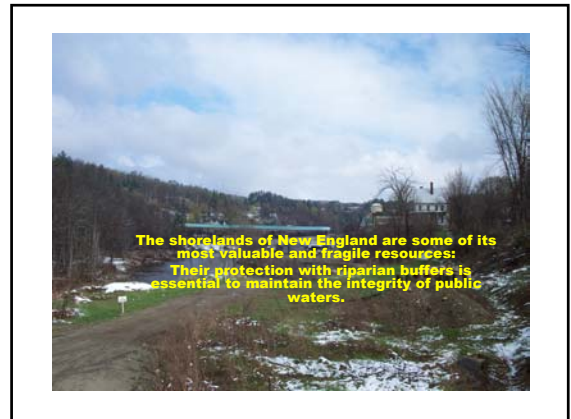
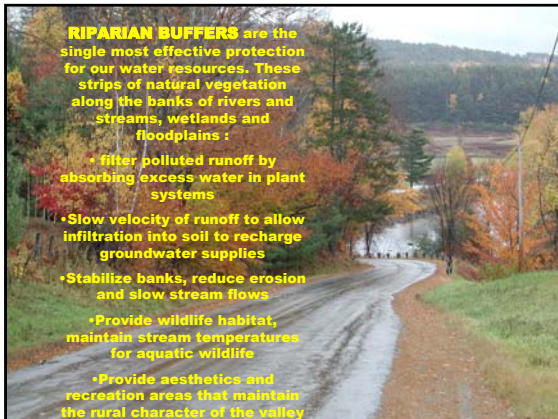
Land conversion of undeveloped areas also
brings traffic closer to waterways, pinching
the vegetated buffers that protect the rivers
from pollutants running off the roadways.
The natural ability of streams to cleanse
themselves is reduced.



Introduction

- What are riparian buffers?

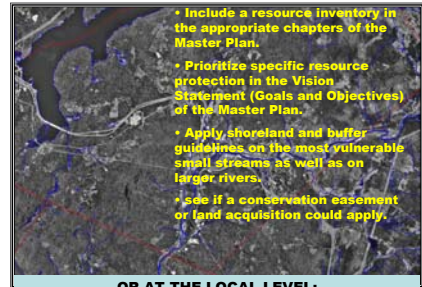
Riparian buffers are vegetated strips of grass, shrubs, and/or trees along the banks of rivers, streams, floodplains, and wetland areas that provide a transition zone between water and human land use.



Shorelands can be protected at the STATE Level:

NH's Comprehensive Shoreland Protection Act, RSA 483-B

- NH protects 4th order streams with buffer requirements in RSA 483-B: the Shoreland Protection Act.
- The requirements of the Shoreland Protection Act are self-implementing: no permit is needed if the regulations are followed.
- Towns may adopt their own shoreland protection ordinance that can apply to lower order streams, thereby protecting smaller streams in the watershed with regulations of their choice.
- If a town has a local ordinance that does not contain a counterpart to all of the provisions of the Shoreland Protection Act, the more stringent provisions shall apply.



OR AT THE LOCAL LEVEL:

Local officials can utilize town Master Plans, subdivision regulations, zoning regulations and site plan review to protect stream buffers in areas that have not yet been developed, and require buffer restoration in developed areas.

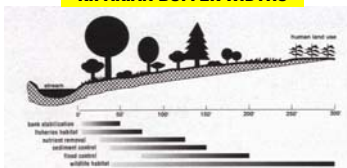
Advantages of Local Riparian Buffer Conservation Overlay Districts (zoning ordinances)

- Local control
 - Knowledge and value of local resources
 - Ability to enforce locally
- Provide protections beyond the minimum State requirements

CONTENTS OF A RIPARIAN BUFFER ORDINANCE

- Title, Authority and Background
- Purpose and Objectives
- Definitions
- Scope and Application (size and location)
- Permitted/Prohibited uses or activities
 - Special beds/exceptions
- Variations
- Plan submittal requirements
- Administration and Enforcement

RIPARIAN BUFFER WIDTHS



Riparian Buffer Ordinance Contains:

- Suggested allowable uses
- Suggested prohibited uses
- Lot coverage (impervious surface limitations)
 - Lot size and density – flexibility
- Minimum frontage and road setbacks – flexible
 - Open space/cluster development
 - Stream setback
 - Buffer width options
 - Protected slope areas

Examples of what to protect with your ordinances



The most important step in creating your own riparian buffer ordinance is to MAP!

- Streams, wetlands and their buffers
- 100-year flood plains
- Soil types and slopes over 15%
- Other valued natural resources (aquifers, public water supply protection areas, important farmlands, woodlands and significant wildlife habitat)
- Cultural resources such as historic/archaeological features



This map shows rivers, streams, waterbodies and 100 year floodplain areas



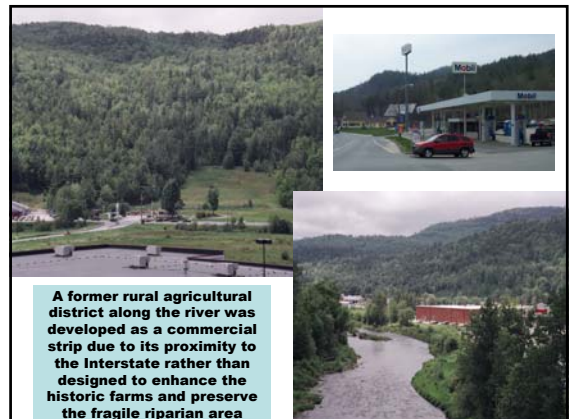
This map shows rivers, streams, waterbodies and hydric (poorly drained) soils



Wetlands have been added to the previous mapped coverage



This map combines all of the previous mapped coverages..... Some of these buildings should have been located differently



A former rural agricultural district along the river was developed as a commercial strip due to its proximity to the Interstate rather than designed to enhance the historic farms and preserve the fragile riparian area



Traditional strip

Green development -
SMART GROWTH

When environmentally acceptable land areas are located for future growth, urge developers to practice SMART GROWTH: retain natural riparian vegetation, minimize asphalt, plant roadways and parking areas, promote pedestrian access, and require a stormwater management plan

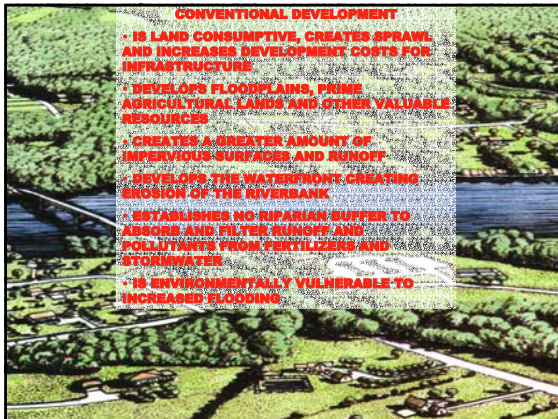


CONVENTIONAL DEVELOPMENT

CONVENTIONAL DEVELOPMENT

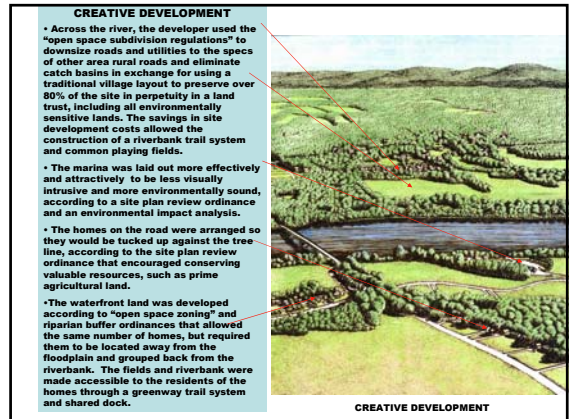
- Across the river, the waterfront property is divided into a grid of uniform, rectangular houselots, with no open space, clearing wide expanses to the riverbank to open up views, damaging the river's ecology: runoff and erosion from construction of homes and nutrient pollution from fertilized lawns.
- A large marina with a huge parking lot and buildings lining the waterfront are built in the most convenient locations - which also happen to be the most visually and environmentally damaging ones.
- The most fertile farm fields are subdivided in rectangular lots with homes built in the middle of each lot, thereby using all of the open space and destroying the formerly rural character of the area.

These most slides are taken from *Rural America: Rural By Design*



CONVENTIONAL DEVELOPMENT

- IS LAND CONSUMPTIVE, CREATES SPRAWL AND INCREASES DEVELOPMENT COSTS FOR INFRASTRUCTURE
- DEVELOPS FLOODPLAINS, PRIME AGRICULTURAL LANDS AND OTHER VALUABLE RESOURCES
- CREATES A GREATER AMOUNT OF IMPERVIOUS SURFACES AND RUNOFF
- DEVELOPS THE WATERFRONT CAUSING EROSION OF THE RIVERBANK
- ESTABLISHES NO RIPARIAN BUFFER TO ABSORB AND FILTER RUNOFF AND POLLUTANTS FROM FERTILIZERS AND STORMWATER
- IS ENVIRONMENTALLY VULNERABLE TO INCREASED FLOODING



CREATIVE DEVELOPMENT

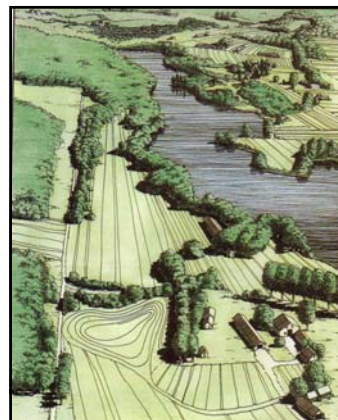
- Across the river, the developer used the "open space subdivision regulations" to downsize roads and utilities to the specs of other area rural roads and eliminate catch basins in exchange for using a traditional village layout to preserve over 80% of the site in perpetuity in a land trust, including all environmentally sensitive lands. The savings in site development costs allowed the construction of a riverbank trail system and common playing fields.
- The marina was laid out more effectively and attractively to be less visually intrusive and more environmentally sound, according to a site plan review ordinance and an environmental impact analysis.
- The homes on the road were arranged so they would be tucked up against the tree line, according to the site plan review ordinance that encouraged conserving valuable resources, such as prime agricultural land.
- The waterfront land was developed according to "open space zoning" and riparian buffer ordinances that allowed the same number of homes, but required them to be located away from the floodplain and grouped back from the riverbank. The fields and riverbank were made accessible to the residents of the homes through a greenway trail system and shared dock.

CREATIVE DEVELOPMENT



CREATIVE DEVELOPMENT

- MAINTAINS THE RURAL CHARACTER OF THE VALLEY
- PROVIDES OPEN SPACE FOR AESTHETICS AND RECREATION
- PROVIDES THE SAME NUMBER OF DEVELOPED UNITS WHILE CONSERVING LAND AND LOWERING THE INFRASTRUCTURE COSTS OF DEVELOPMENT
- CREATES A RIPARIAN BUFFER TO FILTER POLLUTANTS AND RUNOFF, PROVIDE HABITAT, ALLOWS INFILTRATION OF RUNOFF INTO SOIL TO RECHARGE GROUNDWATER SUPPLIES AND STABILIZES BANKS TO REDUCE EROSION



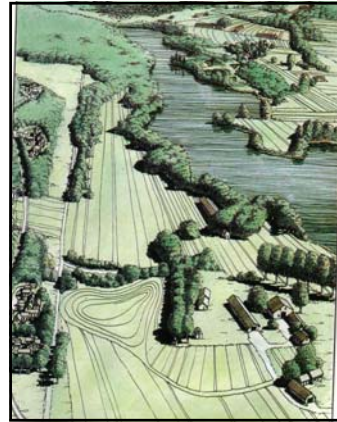
RIVER PROPERTY BEFORE DEVELOPMENT

- Orchard
- Prime woodland with streams
- Open pasture
- Riparian buffer and fields
- Farmstead
- Existing riparian buffer



AERIAL VIEW AFTER CONVENTIONAL DEVELOPMENT

- Orchard effectively destroyed by building development
- Tall apartment units situated haphazardly on the open farmland without regard to landscape
- pasture and riparian buffer destroyed by development
- excessively large, unscreened parking lots
- productive farmstead eliminated



AERIAL VIEW AFTER CREATIVE DEVELOPMENT

- Developer donates conservation restriction on farmland to local non-profit which leases lands and buildings to a farmer
- Orchard and riparian buffer is preserved
- Apartments clustered at edge of woods
- Design of new buildings reflects traditional architecture
- Open space, farmland and water's edge protected from development
- Marketability of project is increased with SMART GROWTH principles which preserve character



FOR MORE INFORMATION on RIPARIAN BUFFERS and SMART GROWTH:



North Country Council
107 Glenner Road
Bethlehem, NH 03574
(603)444-6303 ext. 20
nccln@nccln.net

NH Office of State Planning
2-1/2 Beacon St.
Concord, NH 03301-4487
(603)271-2155
www.state.nh.us/osp/ospweb.htm

NH Dept. of Environmental Service
Water Division
6 Hazen Dr., PO Box 95
Concord, NH 03302-0095
(603)271-3503
www.des.state.nh.us

Environmental Protection Agency
www.epa.gov/owow/region/06/riparian.html
Comprehensive Shoreland Protection Act
NH RSA 483-B